



Facility Operating License NPF-86
Docket No. 50-443

License Amendment Request No. 93-01
Primary Component Cooling Water System
OPERABILITY Requirements

This License Amendment Request is submitted by North Atlantic Energy Service Corporation pursuant to 10CFR50.90. The following information is enclosed in support of this License Amendment Request:

- Section I - Introduction and Description of Proposed Changes
- Section II - Markup of Proposed Changes
- Section III - Retype of Proposed Changes
- Section IV - Safety Evaluation of Proposed Changes
- Section V - Determination of Significant Hazards for Proposed Changes
- Section VI - Proposed Schedule for License Amendment Issuance and Effectiveness
- Section VII - Environmental Impact Assessment
- Section VIII - Other Supporting Information

Sworn and Subscribed
to before me this
26th day of *February*, 1993

Tracy A. DeCredico
Notary Public

Bruce L. Drawbridge
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Executive Director - Nuclear Production

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I. Introduction and Description of Proposed Changes

A. Introduction

The purpose of the proposed Technical Specification change is to revise Technical Specification 3/4.7.3, Primary Component Cooling Water System, to redefine the requirements for an OPERABLE primary component cooling water loop. The design of the Seabrook Station Primary Component Cooling Water System employs two independent and redundant loops, each with two full capacity primary component cooling water pumps. Each Primary Component Cooling Water loop supplies component cooling water to safety related heat exchangers that are required for safe shutdown during a design basis event. Each Primary Component Cooling Water Loop also supplies component cooling water to the reactor coolant pump thermal barrier loop, and to other non-safety related heat exchangers.

The Primary Component Cooling Water System has three significant safety functions. The first is to supply cooling water to safety related components which are required for safe shutdown and/or to mitigate the consequences of an accident. The design basis event for the Primary Component Cooling Water System is a Loss of Coolant Accident (LOCA) coincident with a Loss of Offsite Power. The second safety function is to remove decay heat during plant shutdown. The third safety function is to provide an intermediate fluid barrier between the Reactor Coolant System and the Service Water System to prevent leakage of primary coolant to the environment.

Seabrook Station Technical Specification 3/4.7.3 currently requires two OPERABLE primary component cooling water loops with each loop having two OPERABLE pumps when in Modes 1, 2, 3, and 4. This requirement unnecessarily exceeds single failure criteria since the second primary component cooling water pump in each loop is not required to mitigate the design basis event.

The proposed changes to Technical Specification 3/4.7.3 redefine an OPERABLE primary component cooling water loop as having one OPERABLE primary component cooling water pump. Additional changes are proposed to the duration that a primary cooling water loop may be inoperable and to the surveillance requirements for primary cooling water pumps.

The Primary Component Cooling Water System is designed such that in the event of a Loss of Coolant Accident (LOCA) concurrent with a loss of offsite power, a single primary component cooling water pump supplying a single flow train powered from its associated emergency diesel generator will provide sufficient capability to dissipate the heat loads. Operation of the Primary Component Cooling Water System with one OPERABLE pump per loop will ensure cooling water is supplied to at least one of each of the redundant components performing safety related functions assuming a single failure of any component coincident with a Loss of Offsite Power. This is consistent with the description of the Primary Component Cooling Water System in the Updated Final Safety Analysis Report (UFSAR).

North Atlantic performed a Probabilistic Risk Assessment (PRA) Evaluation of these proposed changes to determine their impact on core damage frequency. The Primary Component Cooling Water System Probabilistic Risk Assessment model was revised to include the affects of removing the standby primary component cooling water pump from the definition of loop OPERABILITY and increasing the Allowed Outage Time (AOT) for an inoperable primary component cooling water loop. The PRA evaluation indicates that the proposed Technical Specification changes would have a negligible effect on the PCCW System availability. The changes would increase the PCCW initiating event frequency, but the overall impact on core damage risk would be insignificant. This evaluation conservatively did not include the positive contributions due to increased flexibility in performing pump maintenance without changing the plant operating mode or the fact that in actuality, primary component cooling water pump maintenance would receive high priority to restore its availability. The Primary Component Cooling Water System PRA Evaluation is enclosed herein in Section VIII.

B. Description of Proposed Changes

The current Technical Specification requirement to have two OPERABLE pumps per primary component cooling water loop is unnecessarily restrictive. As stated in UFSAR Section 9.2, the Primary Component Cooling Water System is designed to dissipate the heat loads associated with the design basis event using one of the four pumps. In addition, the proposed changes to Technical Specification 3/4.7.3 will enhance plant operation by providing greater flexibility in planning and performing maintenance on the Primary Component Cooling Water System. Most maintenance on the pumps is currently performed during refueling outages due to the restrictive nature of the current Technical Specifications. Performing planned maintenance at times other than during outages would provide greater flexibility in outage planning without adversely affecting plant and component reliability. The proposed changes will also permit the performance of unplanned maintenance during plant operation while minimizing plant heatup and cooldown cycles.

The proposed changes to Technical Specification 3/4.7.3 are described below:

1. The Limiting Condition for Operation will be changed to require one OPERABLE pump in each loop. Deleting the requirement for the standby pump still leaves redundant loops capable of providing adequate primary component cooling water flow to dissipate heat loads during the design basis event. A Probabilistic Risk Assessment Evaluation performed by North Atlantic demonstrates that the change in core damage risk associated with this change is insignificant within the bounds of uncertainty.
2. Action Statement (a) will be changed to refer to primary component cooling water loops instead of pumps. The AOT for an inoperable loop will be 72 hours.

3. Action Statement (b), which permits operation with two primary component cooling water pumps in opposite loops inoperable for 72 hours, will be deleted.
4. Action Statement (c), which permits operation with two primary component cooling water pumps in the same loop inoperable for 24 hours, will be deleted.
5. The requirement specified in Surveillance Requirement 4.7.3.b.2 to verify that each of the four primary component cooling water pumps starts automatically upon loss of or failure to start of the redundant pump within the loop is deleted. With the standby primary component cooling water pump not required for loop OPERABILITY, the basis for testing the automatic start capability of these pumps as a Technical Specification Surveillance no longer exists. The deletion of this portion of Surveillance Requirement 4.7.3.b.2 does not affect the regular inservice testing which is performed on the primary component cooling water pumps as required by Technical Specification Surveillance Requirement 4.0.5. The OPERABILITY of the primary component cooling water pumps is demonstrated during quarterly inservice testing of these pumps as required by North Atlantic Procedure MA 6.4 "Inservice Testing of Pumps."